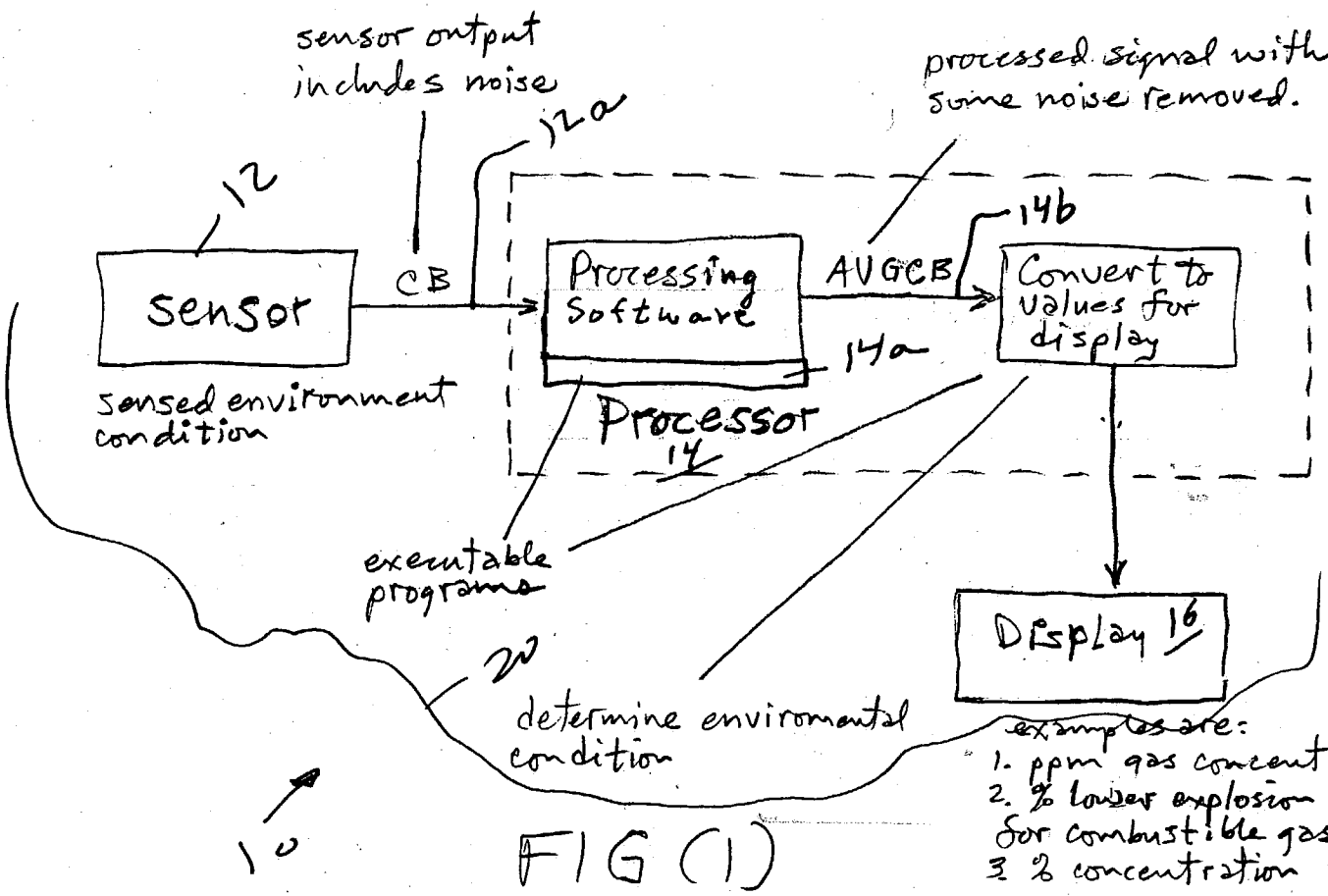
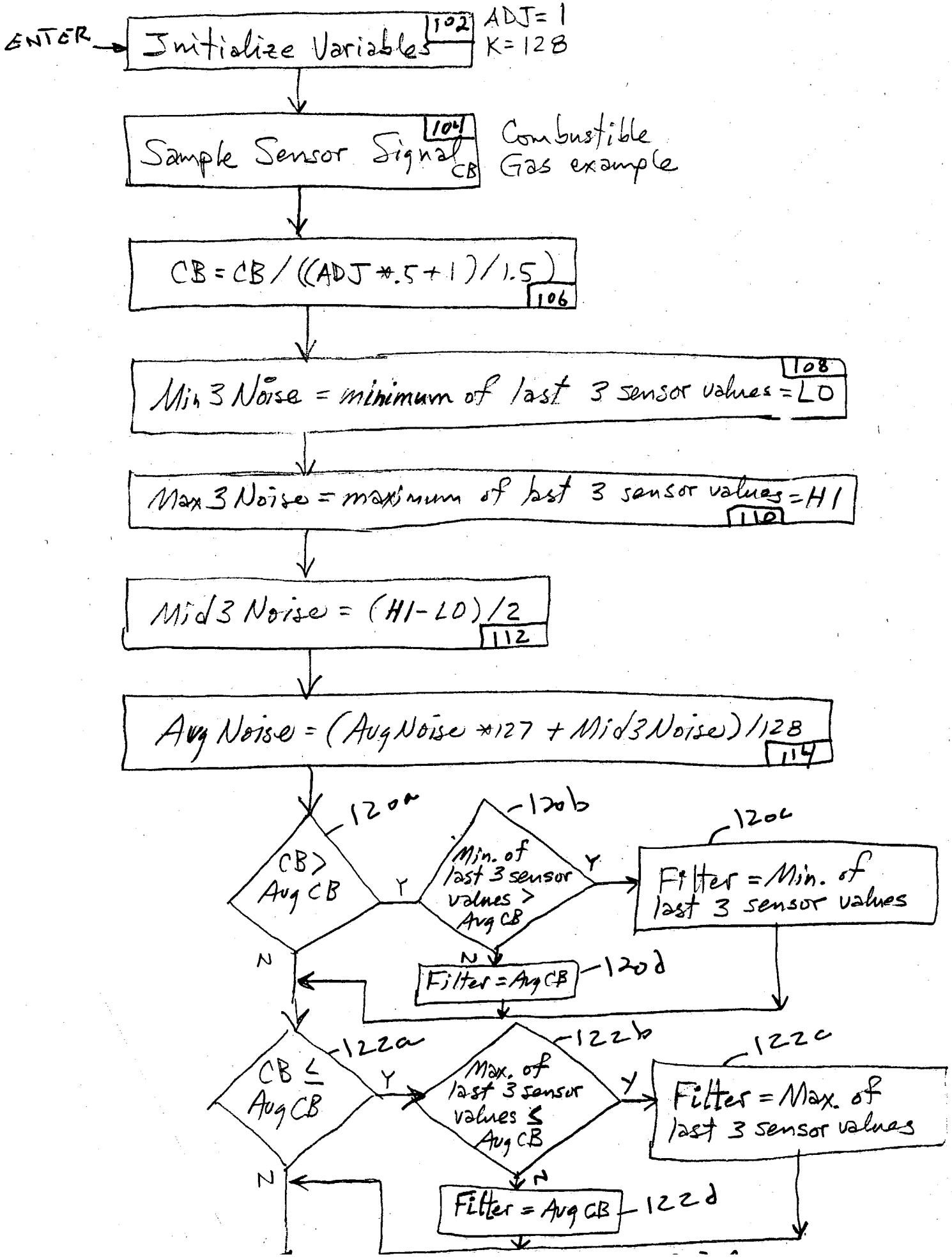


FIG (1)

Dynamic Smoothing Adjust


ENTER
Initialize Variables
102
ADJ = 1
K = 128
Sample Sensor Signal CB
104
Combustible Gas example
CB = CB / ((ADJ * .5 + 1) / 1.5)
106
Min 3 Noise = minimum of last 3 sensor values = LO
108
Max 3 Noise = maximum of last 3 sensor values = HI
110
Mid 3 Noise = (HI - LO) / 2
112
Avg Noise = (Avg Noise * 127 + Mid 3 Noise) / 128
114
120a
CB > Avg CB
Y
120b
Min. of last 3 sensor values > Avg CB
Y
120c
Filter = Min. of last 3 sensor values
N
N
Filter = Avg CB
120d
122a
CB ≤ Avg CB
Y
122b
Max. of last 3 sensor values ≤ Avg CB
Y
122c
Filter = Max. of last 3 sensor values
N
N
Filter = Avg CB
122d

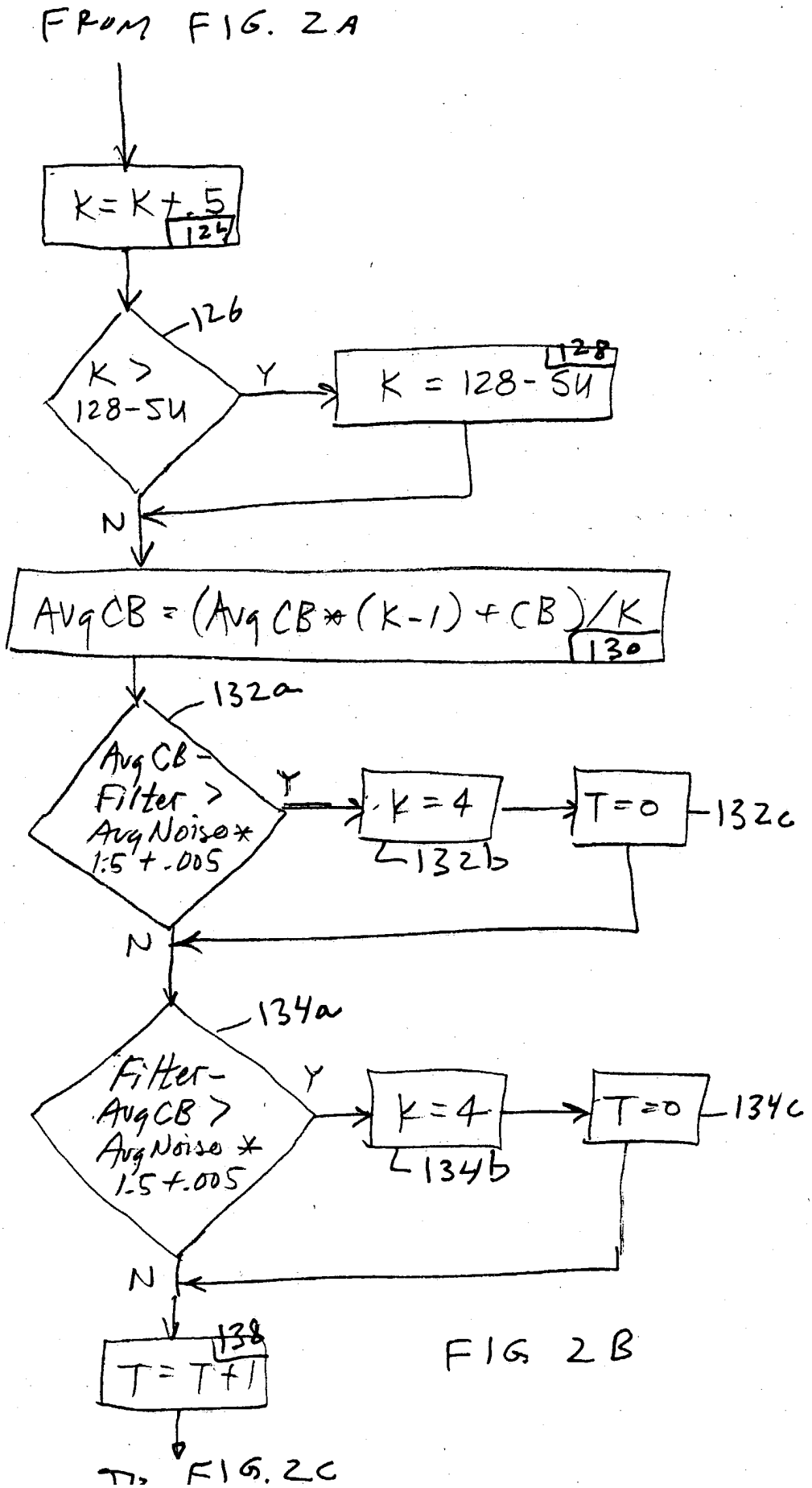

FROM FIG. 2A
K = K + .5
124
126
K > 128-54
Y
K = 128 - 54
128
N
AvgCB = (AvgCB * (K-1) + CB) / K
130
132a
AvgCB - Filter > AvgNoise * 1.5 + .005
Y
K = 4
132b
T = 0
132c
N
134a
Filter - AvgCB > AvgNoise * 1.5 + .005
Y
K = 4
134b
T = 0
134c
N
T = T + 1
138
To FIG. 2C

FIG 2B

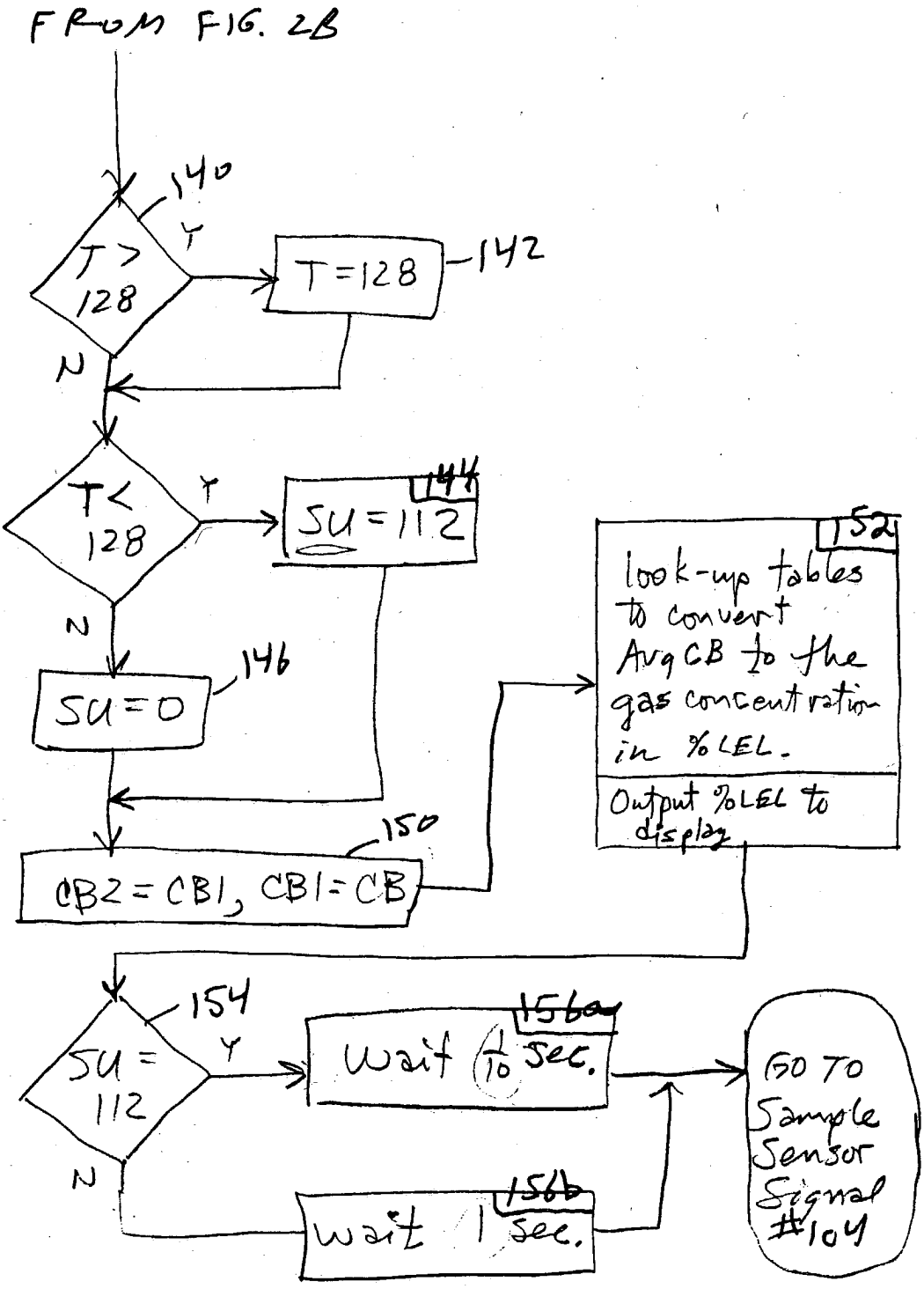

FROM FIG. 2B
140
T > 128
Y
T=128
142
N
T < 128
Y
SU=112
144
N
SU=0
146
152
look-up tables to convert Avg CB to the gas concentration in %LEL.
Output %LEL to display
150
CB2=CB1, CB1=CB
154
SU = 112
Y
156a
wait 1/10 sec.
N
156b
wait 1 sec.
GO TO Sample Sensor Signal #104

FIG. 2C

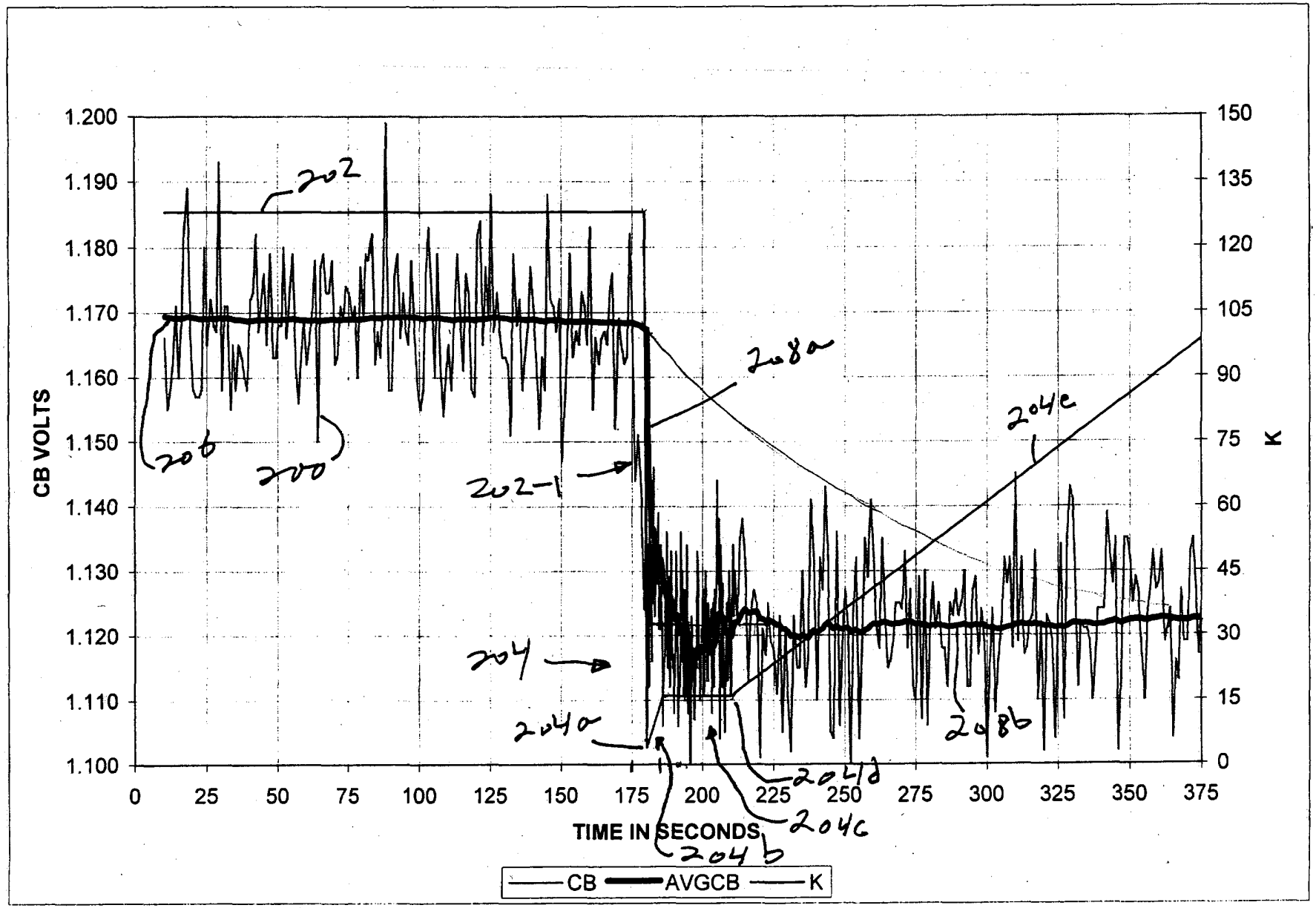

1.200
1.190
1.180
1.170
1.160
1.150
1.140
1.130
1.120
1.110
1.100
CB VOLTS
150
135
120
105
90
75
60
45
30
15
0
K
0
25
50
75
100
125
150
175
200
225
250
275
300
325
350
375
TIME IN SECONDS
CB
AVGCB
K
202
206
200
202-1
208a
204e
204
204a
208b
204d
204c
204b

FIG 3